

Fifth Primary

1st Term













-There are many types of energy like "sound energy, kinetic energy, potential energy…"
-Light is a type of energy that can be seen.

Visible spectrum:
It is the light energy that can be seen.

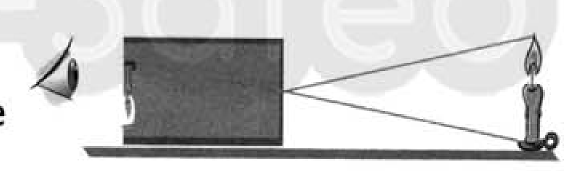
Sources of light:-

Natural sources	Artificial sources
1- Sun 2- Fire	1- Electric lamps 2- Candles 3- Kerosene lamps

****Properties of light:***

First: Light travels in straight lines:

*As light travels in straight lines some phenomena happens:
1) Formation of images through narrow holes:-
In this activity we will see minimized and inverted image of the candle formed on the semi-transparent paper.



Formation of images through narrow holes is due to the traveling of light in straight lines

Note→ the idea of camera depends on the idea of the previous activity.

2) Shadow:-
It is the darkened area which is formed as a result of falling of light on an opaque object.






The shadow area changes (bigger – smaller) by the change in the position of the object to the light source

-The nearer the object to the light source → the bigger the shadow.

- The further the object to the light source → the smaller the shadow.

Second: Light transmits through different materials:

Materials can be classified according to their ability to transmit light into:

a- Transparent materials	b- Semi transparent (translucent)	c- Opaque
It is the material which lets **most** light pass through and objects can be seen **clearly** through it	It is the material which lets **some** light pass through and objects can be seen through it **less clearly** than the transparent	It is the material that **doesn't allow** light to pass through and objects **can't** be seen through it
Ex:- 1- Glass 2- Water 3- Air	Ex:- 1- frosted light bulbs 2-Tissue paper	Ex:- 1-Foil paper 2- Wood 3- cartoon

*Give reason for:-

1- A clear glass is a transparent material.

……………………………………………………………………………………………………

2- A tissue paper is a translucent material.

……………………………………………………………………………………………………

3- Aluminum foil is an opaque material.

……………………………………………………………………………………………………

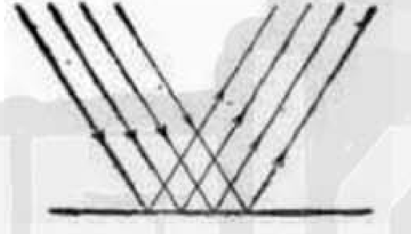
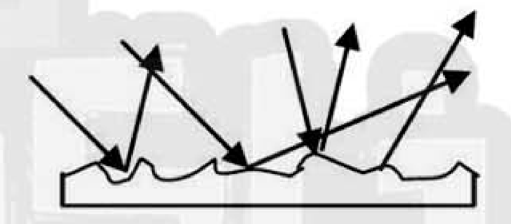
Third: Light reflection:-

Light reflection:

It is the bouncing (returning back) of light rays when light falls on a surface.
- We can see, **because** light falls on objects then reflects in our eyes

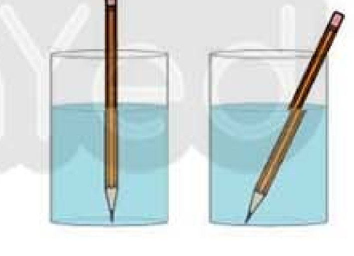
*Factors necessary for light reflection:
1- A source of light
2- A reflecting surface

* **Types of light reflection:**

Regular reflection	Irregular reflection
It is the reflection of light on a **smooth and shiny** reflecting surface, where the light rays are reflected directly in **one direction.**	It is the reflection of light on **rough** reflecting surface, where the light rays are reflected and **scattered in different directions**
Reflection of light rays when it falls on a mirror glass	Reflection of light rays when it falls on a piece of white paper
	

Fourth light refraction:

Light refraction:
It is the change in the direction of light rays when light passes through the separating surface between transparent media, due to the change in the light speed.

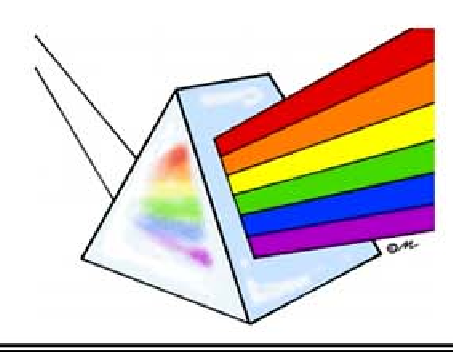


-So, The change in speed of light rays causes their refraction and seeing the pencil broken

Fifth: Separation (splitting) of light:

It is the separation of white light into seven colors called spectrum colors.

Red – Orange – Yellow – Green – Blue – Indigo – Violet



-Glass prism separate white light into 7 spectrum colors.
- White light can be analyzed into the seven spectrum colors by drops of rain water forming rainbow.

C.W

Questions on Lesson one
1-Light

I- Complete the following statements:

1-Light is a form of ……………….
2- The material which allows most light to transmit through is called. …………….
3-Light can easily transmit through …………… and ………… materials.
4-The materials which we can see objects clearly behind it are called ………….
5-Light bouncing when it falls on an object is called ……………
6-………… and …………. are the types of the light reflection.
7-The change in the direction of light rays when they pass through the separating surface between two transparent media is called ……………….

II-Choose the correct answer:

1- The ………….is the light energy that can be seen

a- Visible spectrum	b- transparent material
c- regular reflection	d- shadow

2- Light transmits in ……………..lines

a- broken	b- curved
c- straight	Zigzag

3- Formation of images through narrow holes is due to ……………………

a- light reflection	b- separation of light
c- light refraction	d- travelling of light in straight lines

4- When light falls on an opaque body …………….is formed

a- no image	b- white light

c- a shadow	d- an inverted image

5- Shadow is an …………………area which is formed as a result of falling light on an opaque object

a- lightened	b- semi transparent
c- transparent	d- darkened

6- Materials that we can see objects less clearly through them are called ……………

a- spectrum colors	b- semi transparent
c- transparent materials	d- opaque materials

III- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- Light transmits in straight lines. ( )

2- The formed image through narrow holes is inverted ( )

3- The formation of shadow indicated that light travels in curved lines. ( )

4- The moon seems luminous as it reflects the sunlight. ( )

5- The objects can be seen clearly through the translucent materials. ( )

IV- Write the scientific term for each of the following

1-It is the light energy that can be seen. (-------------------------------)

2-A darkened area formed when light falls on an opaque object and in full details.

(-------------------------------)

3-The materials which you can see objects behind them clearly and in full details.

(-------------------------------)

4-The materials through which light can't transmit. (---------------------------)

5-The returning back of light rays hen they fall on a smooth and shiny surface.

(-------------------------------)

V- Give reason for:-

1- Formation of images through narrow holes

....

....

2- Shadow of an opaque body is formed when light falls on it

....

....

3- Objects can not be seen clearly through frosted glass

....

....

VI- Compare between:

-Transparent, translucent and opaque materials.

a- Transparent materials	b- Semi transparent (translucent)	c- Opaque
		It is the material that .... light to pass through and objects ...... be seen through it
Ex:- 1- Glass 2- Water 3- Air	Ex:-	Ex:-

H.W

I- Complete the following statements:

1-When a light ray passes from glass rod to air, it ……………… .
2-White light can split into ………… colors that are called………….
3-………….. is a phenomenon produced by the separation of white light into seven colors during raining.
4-We see the ……………. in the sky after rain.
5-The glass prism is used to separate the …………… light into seven colors called. ………………
6-Sunlight is separated into ………… Colors by passing it through a ………

II-Choose the correct answer:

1- We can see objects due to …………………of light on them

a- reflection	b- Refraction
c- shadow	d- spectrum colors

2- The light bouncing from a plane mirror is known as …………………………..

a- regular reflection	b- irregular refraction
c- irregular reflection	d- regular refraction

3- Light is reflected………………..when it falls on a rough surface

a- regularly	b- in one direction
c- irregularly	d- and refracted

4- A pencil seems broken when it is placed in a glass cup of water due to the ……………of light

a- reflection	b- separation
c- absorption	d- refraction

5- The speed of light in air is ....that in water

a- equal to	b- faster than
c- slower than	d- half

6- The fourth spectrum color is

a- green	b- red
c- violet	d- yellow

III- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- Frosted light bulbs are examples of transparent materials. (   )

2- Air and water are transparent materials. (   )

3- Reflection, separation and refraction are from the properties of light. (   )

4- A spoon appears broken when it is placed in a cup of water due to the refraction of light. (   )

5- In the irregular reflection, the light rays reflected and scattered in different directions. (   )

6- The change in the direction of light rays when they transfer through a separating surface between two transparent media is called light reflection. (   )

7- When the sunlight passes through the drops of rain water rainbow is formed (   )

IV- Write the scientific term for each of the following:-

1- The reflection of light rays when they fall on a mirror.
(--------------------------------)

2- The reflection of light on a rough surface. Where the light rays are reflected

and scattered in different directions. (-------------------------------)

3- The change in the direction of light rays when light passes from a transparent medium to another transparent medium. (----------------------------)

4-Red, Orange, yellow, green, blue, indigo and violet (-----------------------------)

V- Give reason for:-

1- Seeing the pen pending in a transparent cup of water

....

....

2- You can see objects in a lightened room

....

....

3- The formation of light spectrum

....

....

4- The rainbow appears in the sky by the end of the rain falling

....

....





Lesson (2)
Seeing colored objects



First: - Seeing the colored transparent & colored translucent objects:-

→When the white light strikes (falls on) the colored transparent or translucent object, this object **absorbs all** colors of light & **permits its own color only** to pass through it.



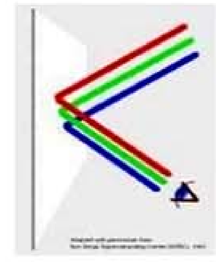
-**So,** The color of the transparent and translucent object is the same color of the **transmitted light** through them

Second: - Seeing the colored opaque objects:-

- Opaque object doesn't allow any light to transmit through it so it **reflects** the light.
- Opaque objects may be: White, black or colored.

a) White opaque objects:

- White opaque objects reflects the color of the light falling on it
-If white light strikes white opaque objects, they reflect all colors of white light.



b) Black opaque objects:

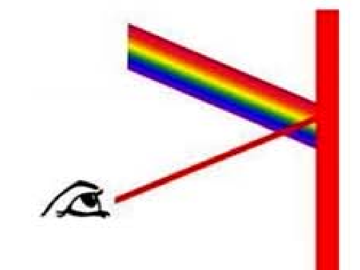
- Black opaque objects **absorbs** all the light colors
- If white light strikes black opaque object, they absorb all the light colors and NO color is seen

P.S: Black = no color



c) Colored opaque objects:-

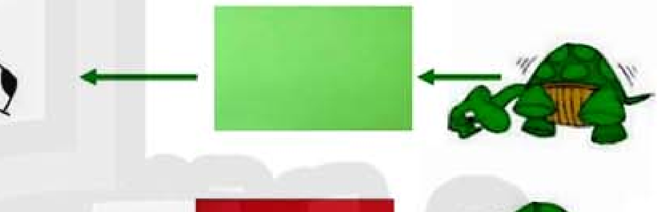
- When the white light strikes (falls on) the colored opaque objects object **absorbs all** colors of light & **reflects its own color only.**



-**So,** The color of the colored opaque object is the same color of the **reflected light**

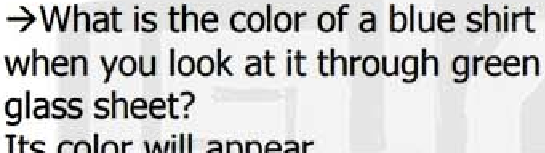
Third: - Seeing colored opaque objects through coloured transparent objects. :

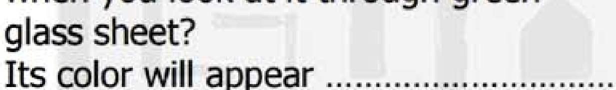
-The opaque object is seen in its real color when you look at it from a transparent object that has the same color



- You see the same object black when you look at it from a transparent object that has a different color.







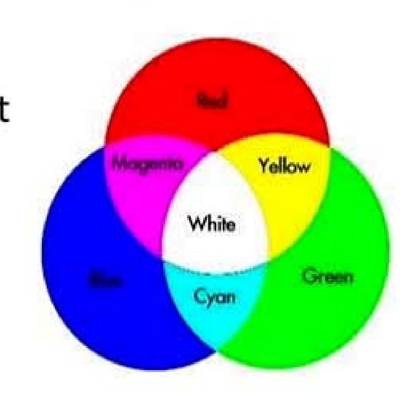
→What is the color of a blue shirt when you look at it through green glass sheet?
Its color will appear ………………………………

Mixing the colored lights

1-Primary colored lights: they are colored lights which are **impossible** to be produced by mixing two of the other colored lights.→

Primary colors are **red** – **green** – **blue.**

Mixing primary colored lights together produce white light



2- **Secondary colored light**s: they are colored lights that **are produced by mixing** two of the primary colored lights.

→ Secondary colored lights are yellow – magenta - cyan

C.W

Questions on Lesson two
2-seeing colored object

I-Complete the following statements:

1-The prism separates the sunlight into ………… .
2- If the seven spectrum colors are mixed together, they produce ……………
3-The transparent colored objects have the same color of the ………………
4- When a white light strikes a transparent glass sheet, the glass sheet will not ………… any of the light colors to pass through.
5- When a white light falls on a yellow translucent plate, the plate absorbs all the light colors except.
6- The colored opaque objects seem with the same color of …………. light.
7- The banana fruit seems yellow, because it ………. and ……….. yellow light only.

II-Choose the correct answer:

1-Mixing the seven light colors gives the ………….
a- white color b- black color c- red color d- orange color
2- When sunlight strikes a red transparent glass sheet, the sheet appears …………
a-yellow b- black c- red d- white
3- When sunlight strikes a white transparent glass sheet. It will absorb ……….
a- red color only b- no color c- all light color d- green color only

4- We wear white clothes in summer reason to ……….
a- reflect all the light color b- absorb all the light colors.
c- Refract all the light colors d- absorb all the light colors except the red color.
5- The blackboard …………… when white light falls on it .
a-absorbs all the light colors.
b-Reflects all the light color
c- Refracts all the light colors.

d- Absorbs all the light colors except red.

III- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- The glass prism separates the white light into 10 spectrum colors ( )

2- When you mix the seven light colors together, you obtain the red light. ( )

3- The transparent objects have the same color of the light that transmits through them. ( )

4- When the white light strikes a red rose, it reflects the white color ( )

5- We see the colored transparent body with the same color, because it reflects all the light colors. ( )

6-An object seems white as it reflects all the light colors ( )

4- Write the scientific term for each of the following:

1- The object that absorbs all the light colors and permits its own color only to pass through (------------------------------)

2- The seven colors of light which sunlight is made up of(------------------------)

3- The lights that impossible to be produced by mixing two of the other colored lights. (------------------------------)

4- The lights that we can get by mixing two of the primary colored lights (------------------------------)

5- Give reason for each of the following:

1-We must wear white clothes in summer season.

....

....

2- We see the white paper as it is.

....

....

3- Red, green and blue are called primary colored lights.

....

....

H.W

I-Complete the following statements:

1- If the red light strikes a white ball, it looks in .... color.

2- Red light + green light + blue light = ...

3-............ are colored lights which impossible to be produced by mixing two of the other colored lights.

4- Mixing all the primary colored lights together gives ....

5- Mixing green and blue lights gives ....

6- Mixing .... and .... lights produces magenta light.

7- Mixing red and green lights give .... light.

II-Choose the correct answer:

1- The colored opaque objects ....When the white light strikes them.

a- absorb all the light colors and reflect their own color only.

b- Reflect all the light colors and absorb their own color

c- Absorb all the light colors

d- Reflect all the light colors.

2- The following lights are primary lights except ....

a- yellow b- green c- red b- blue

3- All the following lights are secondary lights except ....

a- magenta b- cyan c- green d- yellow

4- .... are lights which impossible to be produced by mixing two of the other colored lights.

a- the secondary colored lights b- the primary colored lights

c- yellow and green d- green and magenta

5- What is the type of object that absorbs all the light colors and reflects it own color only? ....

a- Transparent object

b- Opaque colored object.

c- Opaque white object.

d- Opaque black object.

III- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- If you look at a yellow banana through a green glass sheet, it seems black. (   )

2- Blue, green and red lights are primary colored lights (   )

3- Mixing yellow, green and blue lights gives the white light (   )

4- Yellow, magenta (purple) and blue are primary colored lights. (   )

5- The primary colored light can't be produced by mixing yellow with magenta. (   )

4- Write the scientific term for each of the following:

1- Red, blue and green colored lights. (   )

2- Cyan, magenta and yellow colored lights. (   )

5- Give reason for each of the following:

1- Magenta is called a secondary colored light.

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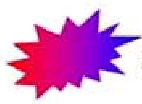
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VI- Compare between the primary and the secondary colored lights



Lesson (3)
Magnetism





Story of MAGNETS:-



- Magnets was discovered 2000 years ago in a Greek area called **Magnesia**
- Magnets are one of the iron ores that is called **Magnetite**

Types of magnet

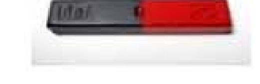
1- Natural magnet	2- Artificial magnet
- black rock **- One of the iron ores called magnetite**	**- man made magnet** **- it has different shapes and sizes**



Shapes of artificial magnet:

1- Rectangular magnet.
2- Horse-shoe magnet (U-shaped).
3- Ring (round) magnet.
4- Bar magnet.

5- Magnetic needle.

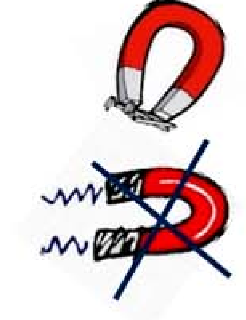


Magnetism:

It is the attraction force of magnet.

→Magnetic Substances:

They are substances that are attracted to the magnet.
Ex: [Iron – Cobalt – Nickel – Steel]



→Non-magnetic substances:

They are substances that are not attracted to the magnet.

Ex: [Glass – Wood – Copper - Aluminum]

Properties of magnets

Magnetic poles

→ It is the area of the magnet where attraction of iron filings increases.

-The magnetic force of the magnet decrease gradually until it disappears in the middle.

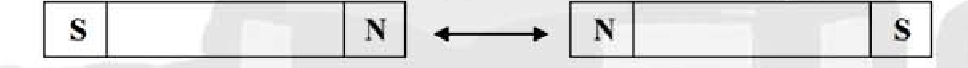
- Each magnet has two poles:

a- North Pole: points to the North direction of Earth.

b- South Pole: points to the South direction of Earth.

****Activity:**

→Approach the North Pole of a magnet to the north pole of another magnet.



They **repel** each other

→Approach the South Pole of a magnet to the south pole of another magnet.



They **repel** each other

→Approach the North Pole of a magnet to the south pole of another magnet.



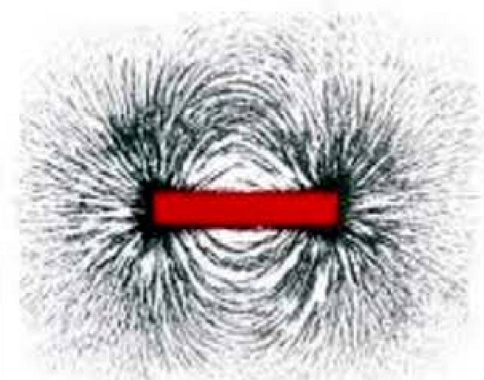
They **attract** each other.

- **Similar** magnetic poles **repel** and **different** magnetic poles **attract**
- North Pole has **Red** color and South Pole has **Blue** color.

-The freely suspended magnet always takes a fixed direction (NORTH – SOUTH) direction



Magnetic Field



-It is the **space** around the magnet in which the effect of magnetic force appears

Magnetic Force

It is the **ability** of the magnet to attract
-magnetic materials



**** Uses of magnetic compass:**

-Used to identify the main four directions.

C.W

Questions on Lesson three
3-Magnetism

I- Complete the following statements:

1- The natural magnet is a .... colored rock.
2- The natural magnet is one of the.............ores which is known by..........
3- Materials are classified according to their ability of magnetization into .... and .... materials.
4- ....and .... are from the magnetic materials.
5- .... and .... are from the non-magnetic materials.
6- The magnet's pole that always refers to the north direction is called............
7- The magnet has the most powerful of attraction at its ....

II- Choose the correct answer:

1- Magnets are divided into...........types.
a- three b- two c- four d- five

2- All the following materials are not attracted to the magnet except...........
a- plastic b- paper c- glass d- nickel

3- When a magnet is hanged freely, its north pole is directed towards the .... direction of Earth.
a- north b- south c- east d- west

4- The South Pole is usually .... colored.
a- red b- blue c- yellow d- brown

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- The natural magnet is one of the iron ores which is known as magnetite. ( )
2- Materials that are attracted to the magnet are called non-magnetic materials. ( )
3- Iron, cobalt and nickel are magnetic materials. ( )
4- The magnet has no effect on the non-magnetic materials ( )

4- Write the scientific term for each of the following:

1- The materials that are attracted to the magnet. (------------------------)
2- The regions of the magnet, where the magnetic force is most powerful (------------------------)
3- The pole of the magnet which points to the north direction of the Earth. (------------------------)
4- The pole of the magnet that repels with the north pole of another magnet. (------------------------)
5- The two ends of the magnet, where the magnetic force is most powerful. (------------------------)

5- Give reason for each of the following:

1- Some materials are called magnetic materials.

....

....

2- Some materials are called non-magnetic materials.

....

....

H.W

I- Complete the following statements:

1- The like poles ....each other, whereas the unlike poles .... each other.
2- The .... is the space surrounding a magnet in which the magnetic force appears.
3- The .... consists of a small light magnet moves freely around a fixed axis.
4- The compass is used to identify the..................
5-The compass always points to the................direction of the Earth.

II- Choose the correct answer:

1- The area that is around the magnet, where its magnetic properties appear is called a................

a- magnetic pole b- magnetic substance
c-non-magnetic substance d- magnetic field.

2- The English scientist .... made a magnetic needle.

a- Isaac Newton b- William Gelbert
c- Bohr d- El-Hassan Ibn – El-Heitham

3- The compass contains ....

a- horse-shoe magnet b- bar magnet
c- small light magnetic needle d- ring magnet.

4- The compass is used to locate the ....

a- temperature b- main four directions
c- magnetism d- (a) , (b) and (c)

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- The freely suspended magnet always takes a fixed direction ( )
2- Magnetism decreases as we go from two poles of magnet towards its middle. ( )
3- The magnetic force is concentrated at the middle of the magnet. ( )
4- The magnetic field is the space surrounding the magnet where, the magnetic force appears. ( )
5- The magnetic field is used to identify the geographical four directions. ( )
6- The magnetic field is the ability of the magnet to attract the magnetic materials existed in its field. ( )

4- Write the scientific term for each of the following:

1- The space around a magnet in which, the magnetic force appears. ( )
2- The pole of the magnet that attracts with the north pole of another magnet. ( )
3- A set is used for locating the main four geographical directions. ( )
4- An object that consists of a small light magnetic needle that can spin freely around a fixed axis. ( )

5- Give reason for each of the following:

1- The compass is used to locate the main four directions.
....
....

** What is the difference between magnetic and non-magnetic materials? (Give examples.)



Lesson (4)
Magnetism and Electricity



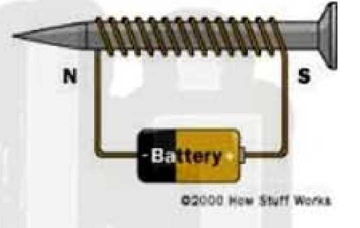


The magnetic effect of the electric current:-

→ The **electric** current has **magnetic effect.**
→ The **electric** current can **generate** a **magnetic field.**

The electromagnet:-

- It is the magnet which is made by electricity.



- It is made up of: a- copper coil (twisted wire)
  b- Wrought iron bar (or nail)
  c- Battery

-When electric current passes through the wire the bar of Iron works as a magnet.



Electric energy ⟶ magnetic energy

Uses of electromagnet

1- In factories to move heavy iron blocks for making crane.

2- Making many devices as :

a- Electric bell b- Electric mixer

c- Disc driver d- television



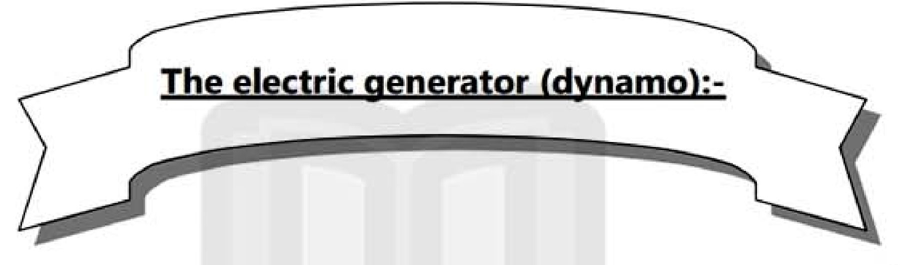
Note that:-

Magnetic force of electromagnet can be **increased by**:-
a- increasing number of coil turns
b- increasing number of batteries

N.B.: the formed electromagnet is a temporary magnet.

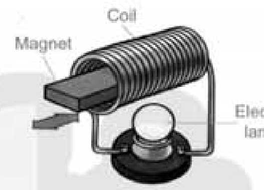
Second The electric effect of magnet:-

→ The **electric energy** can be **generated by** a **magnetic energy** (magnet)

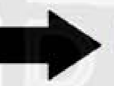


The electric generator (dynamo):-

- It is made up of: a- copper coil (twisted wire)
  b- A magnet



-The kinetic energy moves the magnet to produce electricity



Mechanical (kinetic) energy → electric energy

Faraday: English scientist used this to make an electric generator known as (Dynamo).

→There are many examples on a dynamo
-Small dynamo in a bicycle.
-Huge dynamo (electric generator).





A- Small dynamo in bicycle

***Consists of**

1- A small cylinder touches the bicycle wheel tire and connected to a u-shaped magnet and surrounded by a coil.



-**How does it work:**

When bicycle moves, the small cylinder turns,
-why? **because** it touches the bicycle wheel tire and so the magnet turns.

→***G.R.:*** In dynamo we must increase the motion of the coil causing lighting of bulb between 2 poles of magnet.
-To increase the generation of electric current.

B- Huge dynamo (electric generator):-

***Consists of**

Many great coils that turns between 2 poles of a huge magnet.

Its uses:

It is used in electric power station to generate electricity.



Note that:-

Electric energy of dynamo can be **increased by**:-
a- increasing number of coil turns
b- By using a strong magnet



Questions on Lesson four
4-Magnetism and electricity

1- Complete the following statements:

1-Electric current has .... effect.
2-The magnetic force of the electromagnet .... by increasing the number of coil turns.
3- When an electric current flow through a wire twisted (winding) around a wrought iron nail, the nail becomes an ....
4- The electromagnet consists of......................,..................and..................
5- The electromagnet loses its magnetic force by ....
6- The magnet has ....effect.

2- Choose the correct answer:

1- The magnet which is made by the effect of electricity is called ………………
a- natural magnet
b- magnetic substance
c- electromagnet
d- (b) and (c)

2- The electromagnet is composed of ………………
a- a copper wire only
b-a bar of wrought iron only
c- a battery
d- (a) , (b) and (c)

3- The wire winding on the electromagnet is made up to …………
a- copper
b- aluminum
c- plastic
d- both (a) and (b)

4- All the following devices have an electromagnet inside them except ………….
a- electric bell
b- television
c- disc drive
d- refrigerator

5-When an electric current passes through a coil of wire twisted around a wrought iron bar, the wrought iron bar becomes a …………………magnet.
a- temporary
b- permanent
c- strong
d- weak

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- The electromagnet consists of an iron bar and a coil only ( )
2- The electromagnet changes the electric energy into mechanical energy. ( )
3- The electric current can be generated by using a magnet. ( )

4- Write the scientific term for each of the following:

1- A device used for lifting several tons of steel and scrap cars. (------------------------------)
2- A scientist who discovered that the magnetic energy can be changed into electrical energy. (------------------------------)

1- Mention some instruments in which the electromagnet can be used.

…………………………………………………………………………………………………

…………………………………………………………………………………………………

H.W

1- Complete the following statements:

1- When you move a coil between two poles of a magnet, ... is generated in the coil.

2- The basic idea of the electric generator is the changing of energy into .... energy.

3- Moving a bar magnet through a coil produces ....

4- The electric current produced by the electric generator (dynamo) increases by ....or......................... .

5- The apparatus that converts kinetic energy into electric energy is called ....

6- ....converts the electric energy into magnetic energy, while dynamo converts ....energy into...................energy.

2- Choose the correct answer:

1- An electric current is generated in a coil of isolated wire when you move a (an).........................bar inside the coil.

a- iron
b- wooden
c- magnetic
d- non-magnetic

2- We can obtain magnetic energy from the ....

a- electromagnet
b- television
c- computer
d- dynamo

3- The electric generator (dynamo) works on changing the ....

a- kinetic energy into electric energy.
b- electric energy into mechanical energy.
c- magnetic energy into mechanical energy.
d- electric energy into magnetic energy.

4- The coil of a dynamo is made up of .... wire.

a- carbon
b- copper
c- plastic
d- graphite

5- The dynamo is fixed in the bicycle touching the bicycle's...................

a- seat
b- pedal
c- tire
d- gear

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- An electromagnet is formed when an electric current passes through a compass. ( )
2- The deflection of the ammeter's pointer increases by increasing the motion of the coil. ( )
3- Magnetism is always related with electricity. ( )

4- Write the scientific term for each of the following:

1- A set is used to change the mechanical energy into electrical energy. ( )
2- An instrument that used to generate large amount of electricity to lighten cities and operate factories. ( )

5-What is the composition of the bicycle's dynamo?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

General revision on unit (1)

I- Complete:-

1- Formation of ………………………through narrow holes and formation of …………… are from the applications of travelling light in straight lines.
2- The transparent colored objects have the same color of the ………………..light
3- The materials which are attracted to the magnet are called ……………………… …………………………
4- Electric current has ………………effect
5- The object's image that is formed through narrow holes is …………….and …………………

6- The white paper appears white, because ....
7- The magnet has ....poles, one of them is called ....and the other is called.....................
8- When an electric current flow through a wire twisted around a wrough iron nail, the nail becomes an..........................
9- Light can easily transmit through ....and..................materials
10- The colored opaque objects seems with the same color of ....light
11- The like poles ....each other, whereas the unlike poles .... each other.
12- When you move a coil between two poles of a magnet......................is generated in the coil.
13- ....and ....are the types of light reflection.
14- When you look at a blue shirt through a transparent green glass sheet it appears ....in color
15- The ....consists of a small light magnet moves freely around a fixed axis.
16- The basic idea of the electric generator is changing of ....energy into ....energy
17- Light ....when it passes from one transparent medium to another
18- Mixing ....and......................lights give yellow light.
19- The compass always point to the ....direction of earth
20- The electric current produced by the electric generator (dynamo) increases by ....or..

II- *Choose the correct answer:*

1- Light travels in straight lines. This principle is used in................................

a- Camera　　b- electric heater

c- radio　　d- electric iron

2- When sunlight strikes a white transparent glass sheet, it absorb....................

a- red color only　　b- all light colors

c- no color　　d- green color only

3- The natural magnet is made of one of the iron ores called............................

a- magnetism　　b- magnetite

c- magnesia　　d- hematite

4- The electromagnet is composed of...................................

a- a copper wire only b- a battery

c- a bar of wrought iron d- a, b and c

5- ....materials doesn't allow light to travel through

a- translucent b- transparent

c- opaque d- semi transparent

6- The banana fruit appears..................................when you look at it through a violet transparent glass sheet

a- red b- yellow

c- green d- black

7- The coil of a dynamo is made up of...............................

a- cobalt b- carbon

c- copper d- plastic

8- If you put a magnet near a magnetic material it will.....................

a- repel it b- attract it

c- eat it ☺ d- have no effect

9- Light is reflected ....when it falls on a smooth bright surface

a- and refracted b- irregularly

c- regularly d- and scattered

10- Mixing....................lights produces magenta light

a- red and green b- red and yellow

c- blue and green d- red and blue

11- When a magnet is hanged freely, its north pole is directed towards the .... direction of earth

a- east b- north

c- west d- south

12- We can obtain electric energy from the ....

a- electromagnet
b- television
c- dynamo
d- computer

13- The glass prism separates the white light into........................spectrum colors

a- six
b- five
c- Ten
d- seven

14- The type of object that absorbs all the light colors and reflects it own color only is ....

a- transparent object
b- black opaque
c- white opaque
d- colored opaque

15- The area that is around the magnet, where its magnetic properties appear is called................

a- magnetic pole
b- magnetic substance
c- magnetic field
d- non-magnetic substances

16- The compass contains a ....

a- bar magnet
b- horse shoe magnet
c- ring magnet
d- small light magnetic needle

17- Electromagnet is used for making the......................

a- microscope
b- calculator
c- refrigerator
d- electric bell

18- When an electric current passes through a coil of wire twisted around a wrought iron bar, the wrought iron bar becomes a.......................

a- strong
b- temporary
c- permanent
d- weak



III- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- The formation of shadow indicates that light travels in curved lines ( )
2- The black opaque objects absorb all the light colors ( )
3- A magnet attracts all the materials ( )
4- The electromagnet changes the electric energy into mechanical energy ( )
5- Refraction of light is bouncing of light after falling on an object ( )
6- Blue, green and red lights are primary colored lights ( )
7- The magnetic force is concentrated at the middle of the magnet ( )
8- The electric current can be generated by using a magnet ( )
9- In the irregular reflection, the light rays are reflected and scattered in different directions ( )
10- One of the primary colored lights is produced by mixing red light with blue light ( )
11- One of the applications of using the magnet in our daily life is the compass ( )
12- The small dynamo in a bicycle consists of a small cylinder that touches the tires and this cylinder is connected with a U-shaped magnet. ( )

IV- Write the scientific term for each of the following:

1- A darkened area formed when light falls on an opaque object and in full details. (------------------------------)
2- The lights that impossible to be produced by mixing two of the other colored lights (------------------------------)
3- The space around a magnet in which, the magnetic force appears. (------------------------------)
4- The change in the direction of light rays when light passes from a transparent medium to another transparent medium (------------------------------)
5- A type of energy that transmits in straight lines and reflects when meeting a shiny surface (------------------------------)
6- A device used for lifting several tons of steel and scrap cars. (------------------------------)
7- Cyan, magenta and yellow colored lights. (------------------------------)
8- The regions of the magnet, where the magnetic force is most powerful (------------------------------)
9- A set is used for locating the main four geographical directions. (------------------------------)
10- A scientist who discovered that the magnetic energy can be changed into electrical energy (------------------------------)

V-Give reason for each of the following:

1-The compass is used to locate the main four directions.

2-A tissue paper is a translucent material.

3- The electromagnet is very important

4- Shadow of an opaque body is formed when light falls on it

5- The rainbow appears in the sky after rainfall.

6- When an electric current flows through a wire winding around a wrought iron nail, the nail attracts iron filings

----

7- We see the white paper as it is.

8- Magenta is called a secondary colored light.

9- Some materials are called non-magnetic materials



Unit (2)

Lesson (1)
Mixtures



→Matter can be classified into:-

Pure substance	Mixtures
It is the substance that is made of only type of identical particles	It is the substance that consists of more than one type of particles
Ex:- sugar, baking soda and distilled water	Ex:- Concrete, milk and tomato sauce










First: Types of mixtures:-

a) Solid – Solid b) Liquid – Liquid c) Solid – liquid d) Gaseous – liquid

1- SOLID – SOLID:-

- It consists of two or more different solid materials

Ex:-Fruit salad - Vegetable salad




2- LIQUID – LIQUID:-



- It consists of two or more different liquids

Ex:-Mixture of vinegar and water – mixture of oil and water – mixture of oil and vinegar (salad dressing)

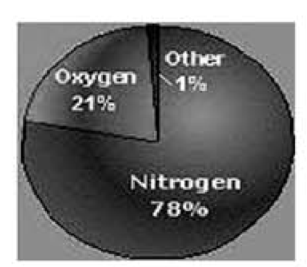
3- SOLID – LIQUID:-



- It consists of solid and liquid matter

Ex:-Mixture of sand and water – mixture of salt and water

4- GASEOUS – GASEOUS:-



- It consists of different gases.

Ex:-Atmospheric air (oxygen gas, nitrogen gas and carbon dioxide gas)

5- GASEOUS – LIQUIDS:-



- It consists of gaseous and liquid matter

Ex:-A mixture of soda water that is produced from dissolving carbon dioxide gas in sugar solution

Second:-Properties of mixtures are:-

1- The components of the mixture do not join (react) together and can be separated easily

2- Each component keeps its own properties

3- The components of the mixture can be mixed at any ratio

Third:-Formation of mixtures:-

1- Shaking 2- stirring 3- Grinding

→ Solid and liquid materials can be mixed by shaking and stirring (Salt and water)

→ Liquid materials can be mixed by shaking or stirring (Strawberry juice and banana juice)

→ Solid materials can be mixed by shaking or grinding (Salt and pepper)

Fourth: - Separation of mixtures



1- Magnetic attraction:-

- It is the method used to separate solid mixtures that contain magnetic substance

2- Filtration process:-

- It is a method used to separate solid mixtures that are insoluble in water

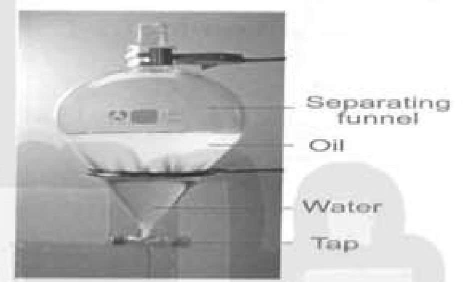
3- Evaporation process:-

- It is a method used to separate the solid materials that are soluble in water



4- Using the separating funnel:-

- It is a device used to separate the heterogeneous liquid mixtures (we can distinguish between components)





C.W

Questions on Lesson one
1-mixtures

1- Complete the following statements:

1-Substances can be divided into two groups which are ....and ....
2- .... consists of more than one type of particles.
3- The type of mixtures in which, we cannot distinguish between its different particles is ....
4- Vinegar and water is .... mixture, while sand and water is .... mixture.
5- Air is made up of ...., ... , ... and ....
6- Sea water is a .... which consists of .... and ....
7- Mineral water is a................ which consists of .... and minerals such as .... and ....
8- Air is .... , while dissolving carbon dioxide gas in a sugary solution is ....

2- Choose the correct answer:

1- All the following are pure substances except ....
  a. distilled water b. mineral water c. sugar d. baking soda
2- .... are examples of mixtures.
  a. Distilled water, baking soda and sugar
  b. Silver, sea water and table salt
  c. Salty solution, sugary solution and mineral water
  d. all the previous answers
3- Atmospheric air is considered as ....
  a. a gaseous-gaseous mixture b. a liquid mixture
  c. a solid mixture d. all the previous answers
4- Fruit salad is an example of ....
  a. liquid mixtures b. gaseous mixtures
  c. solid-liquid mixtures d. solid-solid mixtures
5- Mixing salt with water produces a ....
  a. solid-liquid mixture b. liquid mixture
  c. solid mixture d. solid-gaseous mixture

6- ………… is from liquid-liquid mixtures

a. A mixture of vinegar and water
b. A mixture of sand and water
c. A mixture of lettuce, carrots and tomatoes.
d. Air

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1- The vegetable salad and fruit salad are mixtures ( )
2- You can see the different components of the salty water. ( )
3- Mixtures are formed by magnetic attraction, filtration and evaporation processes. ( )
4- Mixtures can be separated by shaking, grinding and stirring. ( )

4- Write the scientific term for each of the following:

1- A mixture formed by dissolving salt in water ( )
2- A type of matter that its components keep their own properties. ( )
3- A set that is used to separate water-oil mixture. ( )

5- Give reason for each of the following:

A magnet can be used to separate iron filings from sand.

……………………………………………………………………………………………

……………………………………………………………………………………………

A mixture of salt and water is different from a mixture a sand and water mixture.

……………………………………………………………………………………………

……………………………………………………………………………………………

6- What happens when :

1- Shaking or stirring some sugar with water.

……………………………………………………………………………………………

……………………………………………………………………………………………

2- Heating salty water for a long time.

……………………………………………………………………………………………

……………………………………………………………………………………………

3- Dissolving carbon dioxide gas in a sugary solution.

....

....

7- Show how you can separate the following:

1- Salt from salty water.

....

2- Sand from water-sand mixture.

....

8- Examine the opposite figure, then answer the following questions:

1- What is the mixture that can be separated in this figure?

....

....

2- What is the method used in separating this mixture? giving reason.

Mixture

....

H.W

1- Complete the following statements:

1- Each component in the .... keeps its own properties.
2- Mixtures can be formed by ...., ... and ....
3- Components of a mixture can be separated by ...., ..., ... or ....
4- Iron filing and sand can be separated by using..............................
5- ....process is used to separate sand from water.
6- ....process is used to separate a soluble salt from its solution.
7- .... is used to separate water-oil mixture.
8- .... is used to separate heterogeneous liquid mixtures, while ....and ....processes are used to separate a mixture of sand and salty solution.

2- Choose the correct answer:

1- .... is from liquid-liquid mixtures
a. A mixture of vinegar and water
b. A mixture of sand and water
c. A mixture of lettuce, carrots and tomatoes.
d. Air

2- All these methods are used to form mixtures except ....
a. shaking
b. grinding
c. stirring
d. filtration

3- To separate insoluble solid (sand) from salty solution, we use ....
a. filtration process.
b. evaporation process.
c. separating funnel
d. grinding process.

4- .... is (are) from the physical means that are used in the separation of the mixtures.
a. filtration process
b. Evaporation process
c. The separating funnel
d. All the previous answer

5- To separate iron filings from sand, we must use ....
a. a magnet
b. a separating funnel
c. evaporation process
d. filtration process

6- The mixture of sand and salt can be separated by ....
a. a separating funnel.
b. dissolving, filtration and evaporation processes.
c. a strong magnet.
d. evaporation process.
d. evaporation process.

7- Oil-water mixture can be separated by using ....
a. a filter paper
b. a strong magnet.
c. a separating funnel
d. evaporation process.

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

5- Vegetable salad is considered a mixture. (   )

6- Separating funnel is used in separating heterogeneous liquid mixtures (   )

7- Solubility, filtration and evaporation are ways of separating mixtures. (   )

8- We use filtration process to separate mixtures which contain precipitate. (   )

4- Write the scientific term for each of the following:

1- A set that is used to separate water-oil mixture. ( )
2- A method used to get table salt from sea water. ( )
3- A method used to separate magnetic substances from any solid mixture. ( )

6- What happens when?

1- Dissolving carbon dioxide gas in a sugary solution.

....

....

2- Leaving an amount of sea water exposed to sunlight for days.

....

....

3- Mixing different types of juices together.

....

....

7- Show how you can separate the following:

1- A mixture of steel paper clips and flour.

....

2- Coffee from water.

....

8- Look at the opposite figure, then answer the following:

1- What is shown by this figure?

....

....

2- Why do we use this tool in separating some types of mixtures?

....

....

Separating funnel
Oil
Water
Tap

3- What is the mixture that can be separated by this tool?

....

9- Look at this mixture, and then answer the following:

1- What is the type of this mixture?



....

2- Does the mixing process affect the properties of the mixture?

....





Lesson (2)
Solutions

→ **SOLUTIONS:-**

-A solution is made when two or more substances combine to form a mixture.

- Solution consists of

-**Solute:** It is substance which dissolves in solvent (table salt – sugar).

-**Solvent:** It is a substance in which the solute disappears or dissolves (Water – alcohol – benzene).

*(**GR**) Water is a common solvent?

***BEC.** Thousands of substances dissolve in it (salt and sugar)



→ ***SUSPENSIONS:*** it is formed when the solute particles doesn't dissolve completely in solvent (mud – water).

SOLUBILITY PROCESS:

It is a process by which solute dissolves in solvent leading to disappearance of solute.

$$\text{Solute + Solvent} \xrightarrow[\text{Process}]{\text{Solubility}} \text{Solution}$$

⇨ When salt dissolves in water it forms salt solution.

⇨ When sugar dissolves in water it forms sugar solution

* Factors that affect solubility process:

1- QUANTITY OF SOLVENT:

- By increasing quantity of solvent solubility increases and vice versa.
- By decreasing the quantity of solute solubility increases and vice versa.



2- TEMPERATURE:

-By increasing temperature reduce dissolving time when using the same amount of solvent and solute.



3- STIRRING:

-Stirring increases solubility speed.

4- THE KIND OF THE SOLUTE.

Some substances dissolve faster than others (table salt dissolves faster than sodium carbonate).



C.W

Questions on Lesson one
1-mixtures

1- Complete the following statements:

1- The solution is a type of ……………………….
2- The components of …………….. can be distinguished, while the components of …………………..can't be.
3- The substance which dissolves in a liquid is called …………………….
4- …………………… process is required to dissolve salt in water.
5- ……………………is considered as a general solvent, because of its ability to dissolve most materials.
6- Mixing a small amount of mud with water forms ……………….. that can be separated by ………………………. .

2- Choose the correct answer:

1- The substance that its components can't be distinguished is ………….
a. homogeneous mixture b. heterogeneous mixture
c. suspension d. no correct answer

2- Most mixtures formed by dissolving in liquids are ……… Mixtures.
a. homogeneous b. heterogeneous
c. identical d. (b) and (c)

3- To form salty solution, we add salt to water with ……….
a. melting b. evaporation
c. stirring d. (a) and (b)

4- From examples of homogeneous liquid mixtures is ………….
a. water and sand b. lemon juice and water
c. water and iron filings d. salt and sand

5- The substance in which solids dissolve is called …………….
a. solubility process b. solvent
c. solute d. sugar

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1. Mixture of sugar in water is a heterogeneous mixture ( )
2. Water in sugary solution is the solute. ( )
3. Salt is the solvent in a salty solution ( )
4. The suspension can be separated by using magnetic attraction ( )

4- Write the scientific term which indicates each of the following :

1. The liquid used to dissolve the solid substances. ( )
2. The solid substance that dissolves in a solvent. ( )
3. The liquid mixture which is composed of a solute and a solvent. ( )

5- Give reason for each of the following:

1- Solution is a type of mixtures.

....

....

2- There are different types of mixtures.

....

....

3- Water is considered a common solvent.

....

....

6- How does temperature affect the solubility process?

....

....

H.W

1- Complete the following statements:

1- Solubility process is affected by.................................. , ... , ... and ....

2- Increasing the quantity of solvent ....the solubility time in a certain amount of solute.
3- Increasing .... reduces the solubility time.
4- Increasing temperature .... the solubility time.
5- The time required to dissolve the same quantity of sugar in hot water is ....than that in cold one
6- The speed of solubility .... by increasing stirring process.

2- Choose the correct answer:

1- The solvent in chocolate-milk solution is ....
a. milk   b. chocolate
c. water   d. all the previous answers are correct

2- The substance that dissolves in liquid is called ....
a. solubility process   b. solvent
c. solute   d. no correct answer

3- The process in which solute dissolves in solvent is known as ....
a. solubility   b. solvent
c. evaporation   d. fusion

4- .... results from the solubility of a solute in solvent.
a. Mixture   b. Stirring   c. Liquid   d. Solution

5- All these factors affect solubility process except ....
a. temperature   b. color of solvent
c. stirring   d. type of solute

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it:

1. The solubility time increases as the amount of the solvent decreases. (   )
2. Solubility speed decreases by shaking and rising the temperature. (   )
3. The solubility speed of solids increases by grinding. (   )

4- Give reason for each of the following:

1- The solubility speed depends on the temperature of the solution components.

....

....

2- It is better to dissolve sugar in water by heating and stirring.

....

....

5- Mention the difference between:

1- Mixture and solution:

....

2- Solute and solvent.

....

General revision on unit (2)

1- Complete the following statements :-

1- ....consists of more than one type of particles

2- The solution consists of ....and ....which are mixed by ....process

3- vinegar and water is ....mixture, while sand and water are .... mixture

4- The process by which a solute dissolves in a solvent is known as .... process

5- Mixture can be formed by ...., ...and grinding

6- Increasing the quantity of solvent ....the solubility time

7- Components of a mixture can be separated by ...., ... , ...or ....

8- Increasing temperature ....the solubility time

9- .... filteration process is used to separate sand and water

10- The solubility time that is needed to dissolve 10 gm of table salt .... than that required to dissolve 10 gm of sodium carbonate

11- ....is used to separate heterogenous liquid mixtures, while ....and .... processes are used to separate a mixture of sand and salty solution

2- Choose the correct answer :-

1- ....is an example of heterogenous liquid mixtures

a- Apple juice b- Tea
c- Salty solution d- orange juice

2- All of the following are mixtures except ....

a- milk b- toothpaste c- perfume d- sugar

3- Any solution is composed of ....

a- a solvent only b- a solute only
c- a solute and solvent d- a solute or a solvent

4- Atmospheric air and mineral water is considered as ....

a- Pure substance b- mixtures
c- compounds d- a,b and c

5- ....results from the solubility of a solute in a solvent

a- mixture b- Stirring c- liquid d- Solution

6- Amixture of lemon juice and orange juice can be formed by ....

a- shaking b- filteration process c- grinding d- evaporation process

7- All these factors affect solubility process except......................

a- temperature
b- color of solvent
c- stirring
d- type of solute

8- Grinding the sugar cubes ....

a- decrease the speed of solubility
b- increase the speed of solubility
c- prevents the solubility process
d- decrease the amount of solvent

9- All these methods are used to separate mixtures except ....

a- magnetic attraction
b- filteration process
c- evaporation processes
d- Shaking process

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it :

1- The vegetable salad and fruit salad are mixtures ( )
2- Table salt is obtained from sea water by evaporation process ( )
3- Sand and water mixtures can be separated by magnetic attraction ( )
4- The solutions is composed of a solute and a solvent ( )
5- Water in sugary solution is the solute ( )
6- Water is the most common solvent ( )
7- The solubility time increases as the amount of the solvent decreases ( )
8- Apple juice is a suspension, while orange juice is a solution ( )

4- Write the scientific term:-

1- The mixtures that results from dissolving solid materials (table salt) in a liquid
2- A method used to form salt – pepper mixture
3- The solid substance that dissolves in a solvent
4- A mixture produced by dissolving carbon dioxide gas in sugary solution
5- The substance in which the solute disperses
6- Leaving some tea water exposed to sun rays for many days
7- A method used to separate magnetic substances from any solid mixtures

5- Give reason for each of the following:-

1- A magnet can be used to separate iron filings from sand

....

....

2- Solution is a type of mixtures

....

....

3- Water is considered as a common solvent

....

....

4- A mixture of salt and water is different from a mixture of sand and water

....

....

5-The solubility speed depends on the temperature of the solution

....

....

6- Dissolving sugar in tea is easier than lemonad

....

....

Unit (3)

Lesson (1)
Food relationships among living organisms

** As you know that plants are called autotrophic organisms (they can do their own food) Through photosynthesis process.

- Animals depend directly on plants in their feeding The relationships between living organisms are :-



1- Predation
2- commensalism
3- Saprophytism
4- parasitism

1-PREDATION

It is a relationship among living organisms, where one living organism devours (predate) another one

A- In animals:

- Predator:
- [Lions – tigers – wolves – cats – sharks]

- prey:
- [Deer – rabbit – rat]

→ Predators devour the preys to get their food.

Predator —Attacking, killing, devouring→ Prey

B- In plants:

- Some plants have to prey tiny animals such as insects to get elements needed to make proteins

Predators **[insectivorous plants]** ⟶ prey [insects]

e.g drosera plant halophila plant

N.B: Predation is a temporary relationship

→ How can the preys defend themselves against the enemies?

→ How can the preys defend themselves against the enemies?

A- Camouflage	B-Mimicry
- The living organisms hide from their enemies by changing their colour to simulate the surrounding environment.	- The (harmless) living organisms imitate other harmful or poisonous living organisms to frighten their enemies and escape from them.
Ex:- ***fish – frog – birds – butterfly – chameleon***	Ex:- ***some bees which look like wasps.***

→ Chameleon hides from its enemies while bees frighten their enemies and escape

2- COMMENSALISM

It is a relationship between two different living organisms one of them benefits from the other and does not harm it, the other may or may not benefit from the first.

Types of commensalism:

A) Mutualism **B) symbiosis**

A) Mutualism:-
Each living organism gets benefit from the other and is not harmed.

-Examples on (MUTUALISM):-

I-Relationship between nodular bacteria and leguminous plant :-

→ a- nodular bacteria ⇄ leguminous plants (bean)

They provide the plants with nitrogen (bacteria → plants)

Plant provide the bacteria with sugar (plants → bacteria)



2- Relationship between insects and flowers:-

→ b- insects —Accomplishing pollination→ flower
←Give the insect the nectar to feed on—

3- Relation ship between hippopotamus and some birds:-

c- birds —Gets rid of horrible bits of ticks→ hippopotamus
←They eat the ticks hidden in the folds of the skin of hippopotamus—



-Examples on (symbiosis):-

-A relationship between two living organisms one of them benefits from the other and the other don't get benefits or being harmed.



a- Birds pick up the food that remains between the teeth of the Nile crocodiles

b- The tiny aquatic living organisms get their food and shelter from canals found inside the sponge. (The sponge neither gets benefit nor is harmed)

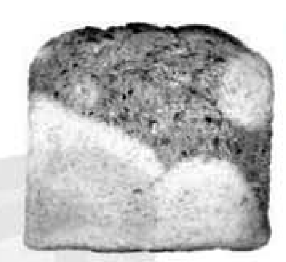


3-SAPROPHYTISM

Saprophyte organisms get their food by decomposing food remains or bodies of dead organisms.

Examples of decomposers or saprophytes :

a- Mushroom fungus
b- Bread mold fungus.
c- Penecillium fungus.





4- PARASITISM

It is a food relationship between two different kinds of living organisms, one benefits from the other and is known as the parasite, while the other is harmed and is known as the host.

→ Parasite depends completely on the host to get its food.
→ Parasites transmit diseases to the host.

Types of parasites:-

EXTERNAL:	**INTERNAL:**
The parasites live externally on the host's body and feeds by sucking the blood of the host.	The parasite lives inside the host's body and shares the host its digested food or feeds on its cells or tissues.
e.g.: Mosquitoes – lice – bugs – ticks – jawless lamprey that sucks fish's blood.	e.g.: Bilharzia worm – tape worms – Ascaris worms – liver worms – flaria worms.

HARMS OR DISEASES CAUSED BY PARASITISM :-

1- Flaria worm —cause→ elephantiasis disease.

2- Mosquitoes —cause→ Malaria.

3- Fleas —cause→ small pox.

4- Bilharzia —cause→ Bilharziasis

5- Ascaris —cause→ Anemia

Fish aquarium is the best example for the food relationship between living organisms

1- Fish and snails feed on elodea plant.
2- Elodea plant absorbs carbon dioxide gas released from the respiration process of fish, snails and worms.
3- The worms feed by decomposing wastes of other living organisms.

Questions on Lesson one
1-Food Relationships

1- Complete the following statements :-

1- In predation, the animal that devours the other living organism is known as ……………. , while the devoured animal is known as ……………… .
2- The food relationship in which one living organism devours another one is known as ……………….
3- Plants that feed on some insects are known as ………… plants, such as …………. and ……………. .
4- During ……….. phenomenon, the living organism changes its color to simulate its surrounding environment.

5- Camouflage phenomenon is found in some living organisms such as birds, ………….. and ………….. .
6- There are two types of commensalisms which are ………….. and …………… .
7- The food relationship between nodular bacteria and leguminous plants is known as ………………. .
8- Nodular bacteria benefit from bean plant by getting ………. which made by the plant during ………… process.

2- Choose the correct answer :-

1- The animal which devours another animal is known as the ……….
a. parasite b. host c. prey d. predator
2- The relationship between the cat and rat is ………….
a. parasitism b. symbiosis c. mutualism d. predation
3- Plants which cannot make protein substances have to prey some tiny ….
a. insects b. plants c. microbes d. fungi
4- The ……….. can simulate the color of the surrounding environment.
a. bee b. crocodile c. ascaris worm d. chameleon
5- The ………… can change its color to hide from its enemies.
a. frog b. ascaris worm c. bee d.hippopotamus
6- ………… is the phenomenon in which a harmless living organism imitates other harmful living organism
a. Mimicry b. Symbiosis c. Camouflage d. Mutualism
7- The food relationship between two living organisms, one of them gets benefit, while the other may or may not benefit from the first is known as …………….
a. predation b. parasitism c. commensalisms d.saprophytism
8- The relationship between crocodiles and some birds is known as ……..
a. mutualism b. symbiosis c. predation d. parasitism

3- Write the scientific term which indicates each of the following :

1- The temporary food relationship that ends by devouring the prey or a part of it. (   )

2- The food relationship in which each organism gets benefit from the other and is not harmed. (   )

3- The food relationship, in which one organism benefits from the other and the other neither

gets benefit nor is harmed. ( )

4- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it :

1- In predation, the devoured animal is called the prey. ( )

2- Lions, tigers and sharks are predators. ( )

3- In mimicry relationship, the living organisms protect themselves by changing their color to simulate the color of the surrounding environment. ( )

4- In camouflage, harmless living organisms imitate other harmful or poisonous living organisms to frighten their enemies. ( )

5- The relationship between insects and flowers of plants is mutualism ( )

5- Give reason for each of the following :

1- Some plants are known as insectivorous plants.

....

....

2- Some animals have the ability to camouflage.

....

....

H.W

1- Complete the following statements :

1- The food relationship in which, each organism gets benefit from the other and is not harmed is known as ....

2- There is a .... food relationship between crocodiles and some birds.

3- Bread mold fungus decomposes the .... bread causing the formation of .... layer on the bread.
4- In parasitism relationship, the living organism that benefits from the other is known as .... , while the living organism that is harmed is known as ....
5- Liver worm, ... and .... are from the parasites that live internally inside the host's body.
6- In internal parasitism, the parasites share the hosts .... or feed on their ....
7- Mosquitoes can cause .... disease to man.

2- Choose the correct answer :-

1- The relationship between crocodiles and some birds is known as ....
a. mutualism b. symbiosis c. predation d. parasitism

2- The relationship between hippopotamus and some birds is known as ......
a. mutualism b. symbiosis c. predation d. parasitism

3- .... Is the food relationship between sponge and the tiny aquatic organisms.
a. Mutualism b. Symbiosis c. Predation d. Parasitism

4- Saprophytes are ....
a. parasitic organisms b. autotrophic organisms
c. decomposers d. (a) , (b) and (c)

5- .... is a food relationship in which one organism benefits from the other and harms it.
a. Commensalism b. Parasitism
c. Saprophytism d. Symbiosis

6- In the parasitism relationship, the organism which is harmed is called the ....
a. parasite b. prey
c. host d. commensal organism

7- .... worm infects man causing elephantiasis disease.
a. Ascaris b. Flaria
C. Bilharzia d. Liver

8- Mosquitoes cause .... disease to man.
a. elephantiasis b. small pox
c. malaria d. bilharziasis

3- Write the scientific term which indicates each of the following :

4- The food relationship in which the organism gets its food by decomposing

the food remains or the bodies of dead organisms. (   )
5- A parasite worm that causes bilharziasis disease. (   )
6- A disease caused by parasitic ascaris worms. (   )

4- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it :

6- The relationship between nodular bacteria and bean plant is mutualism (   )
7- The relationship between crocodiles and birds is symbiosis. (   )
8- The food relationship in which one organism gets benefit and the other is harmed is called the parasitism. (   )
9- Lice, bugs, fleas and lamprey are external parasites. (   )
10- Internal parasites feed by sucking host's blood. (   )

5- Give reason for each of the following :

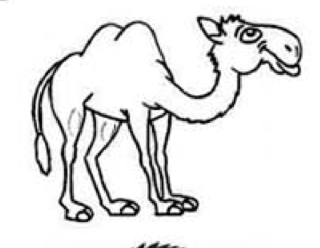
1- Some bees look like wasps in forming lines on their bodies.
....
....





Lesson (2)

Environmental Balance



Ecosystem:

-It is any natural area including living organisms (as plants and animals) and non living things as (water, soil, air).

→ Ecosystem may be small like pond or large like a desert or ocean or very large as the universe.
→ Ecosystem consists of living things and non living things.





Environmental balance:
→ It is the balance among the components of the ecosystem.



→ Factors harm (disturb) the environmental balance.

1- Natural changes **2- Man interference**

1- Natural changes

→ Changing in natural conditions in the ecosystem causes a disturbance that leads to:
a- Disappearance of some organisms.
b- Appearance of other organisms.
c- Environmental imbalance that may take a short or a long period of time until a new balance occurs in this environment.

→ Change in the natural conditions of the environment leads to disappearance of dinosaurs causing extinction.

2- Man interference:

1- Cutting down trees, 2- burning forests, 3- polluting environment 4- eroding the soil
All of these factors lead to the disturbance of the environmental balance.



A- The effect of predation on the environment and eroding the soil leads to the disturbance of the environmental balance:

-Predation plays an important role in keeping the environmental balance.
-Predation organizes the numbers of preys population.
-The predators help preys to get rid of weal or sick members.

If there were no predators :

Population of preys would increase in number.
Food becomes not enough and competition appears so preys will die

B- *The effect of saprophytism on the environmental balance* :

→ Saprophytism has a major importance in the ecosystem.

*****Importance of saprophytic organisms:***

1- Decompose the dead bodies.
2- Recycle the chemical elements in the dead bodies like (carbon – nitrogen and phosphorus) to the environment.
3- Used in many industries such as medicine, leather tanning, food and cheese.



Questions on Lesson two
2- Environmental balance

1- Complete the following statements :-

1- Ecosystem may be small as .... or large as .... or very large as ....
2- The balance between the components of the ecosystem is called ....
3- Some human activities such as .... and .... cause the disturbance of the environmental balance.
4- .... is a food relationship that organizes the numbers of preys in populations.

2- Choose the correct answer :-

1- An ecosystem is any .... area including living organisms and non-living things.
a. natural b. artificial c. deep d. (a) , (b) and (c)
2- All the following are the components of the ocean ecosystem except the ...
a. fish b. dolphins c. deer d. sharks
3- All the following are large ecosystems except the ....
a. desert b. water pond c. forest d. sea
4- All the following cause a disturbance to the environmental balance except ...
a. cutting down trees b. natural changes
c. disappearance of organisms d. saprophytes

3- Write the scientific term which indicates each of the following:

1. The natural area which includes living organisms and non-living things. (   )
2. The phenomenon that had occurred to dinosaurs in ancient eras due to changing of natural conditions. (   )
3. the organisms which organize the number of preys populations in the ecosystem (   )
4. The relationship which helps preys populations get rid of weak or sick members. (   )

4- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it

1. Introducing new living organisms into a new ecosystem with much food and no enemies causes environmental balance. (   )
2. Environmental balance is the balance among the components of the ecosystem. (   )
3. A new balance takes place after the occurrence of an environmental imbalance for a long or a short period of time. (   )
4. Changing of natural conditions leads to environmental balance (   )

5- What would happen in each of the following cases?

1- Introducing rabbits into an island with much food and no natural enemies.
……………………………………………………………………………………………
……………………………………………………………………………………………
2- Saprophytes (as bacteria) disappear from the planet Earth.
……………………………………………………………………………………………
……………………………………………………………………………………………

H.W

1- Complete the following statements :-

1- The disappearance of predators in an ecosystem causes the increase of …………… and ………… become insufficient.
2- ………… help in getting rid of bodies of ……….. by decomposing them.

2- Choose the correct answer:

1- In the ancient eras, the ……….. led to the extinction of dinosaurs.
   a. appearance of new organisms.
   b. disappearance of organisms
   c. man interference
   d. changing of natural circumstances (conditions)
2- Predation relationship plays an important role in organizing ……….. in the ecosystem.
   a. preys numbers   b. shelters
   c. food resources   d. saprophytes number
3- Saprophytic organisms ……….. chemical elements within the ecosystem.
   a. provide   b. save   c. keep   d. recycle

3- Put (√) in front of the correct statement and (x) in front of the incorrect ones, then correct it

1. Predation relationship keeps the balance within the ecosystem
2. When food resources in the ecosystem become insufficient, mutualism appears among preys populations.
3. Without the activity of saprophytic organisms, earth's surface would be covered with bodies of living organisms.

4- What is meant by?

→ Ecosystem ....
....
→ Environmental balance ....
....

PRACTICAL SHEET

Sample (1)

Observation:

1-..

2-..

Conclusion:

....

Sample (2)

Formation of image by using of...................................

because light travels in..

The image is..............................and............................

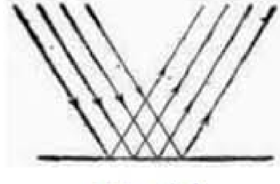


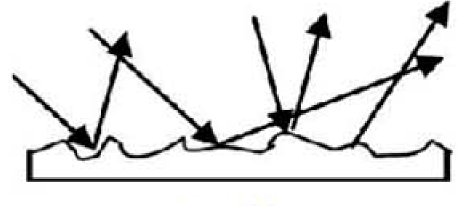
Sample (3)

......................................is the darkened area

which is formed as a result of..................................

Sample (4)


Fig. (a)


Fig. (b)

1-The two samples represent.............................of light.

2-Fig.(a) represent..

3-Fig.(b) represent..

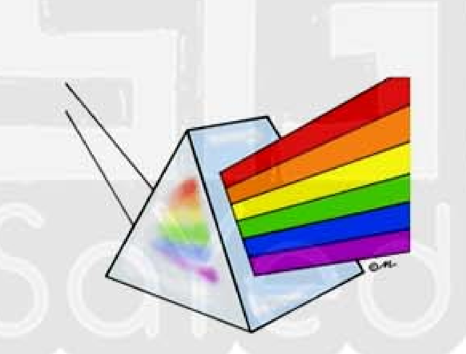
Sample (5)

1-The opposite sample indicates..............................

2-The speed of light through air is................................


its speed through water.

Sample (6)



The sample shows the separation of.............................

into........................by.............................

Sample (7)

Identify the samples:






These samples are.......................................



Sample (8)

1-Identify the sample:.................................

2-These sample used to identify..............................

3-The sample contains............................which moves freely around fixed axis.

Sample (9)

1-Identify the sample:...

2-Write the labels:

....

1. ....

2. ....

3-In this sample......................energy change to..........................energy. Part (1) becomes.....................................

Sample (10)

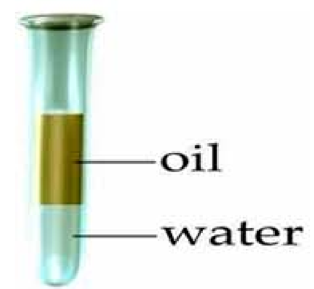
1-The part (a)is........................, but part (b) is............................

2-When part (a) is moved inside part (b)..............................generates.

3-In this sample............................energy changes into............................energy.

4-This is the idea of making...........................

Sample (11)



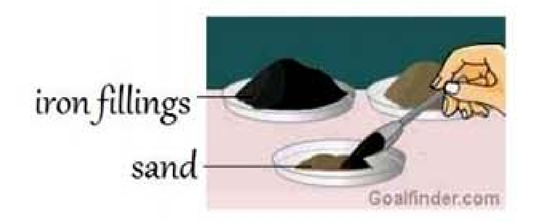
1-What is the type of this mixture?

2-How can we separate this mixture?

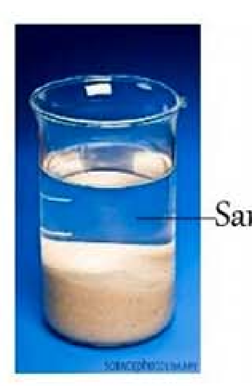
Sample (12)

1-What is the type of this mixture?

2-How can we separate this mixture?



Sample (13)



1-Choose:

The type of this mixture is...

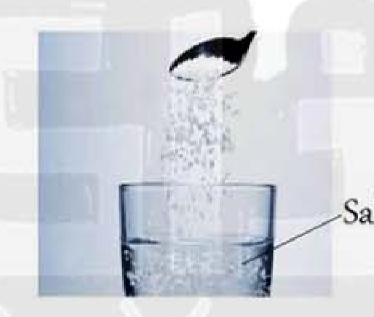
a. Homogeneous mixture, liquid-solid mixture

b. Heterogeneous mixture, liquid-liquid mixture

c. Heterogeneous mixture, liquid- solid mixture

2-How can we separate this mixture?

Sample (14)



1-Choose:

The type of this mixture is...

a. Homogeneous mixture, liquid-solid mixture

b. Heterogeneous mixture, liquid-liquid mixture

c. Heterogeneous mixture, liquid- solid mixture

2-How can we separate this mixture?